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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

GOUDREAU, GEORGE A

ART UNIT PAPER NUMBER

1763

DATE MAILED: 12/21/2001

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09-477,299

Applicant(s)

Srinivasan et al

Examiner

George Goudreau

Group Art Unit

1763

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- ☒ Responsive to communication(s) filed on (3-001) (re-papers # 1-2)
- ☐ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 111; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 1-23 is/are pending in the application.
- Of the above claim(s) 11-23 is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 1-9 is/are rejected.
- ☒ Claim(s) 10 is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

## Application Papers

- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some\* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other \_\_\_\_\_

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15. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-10, drawn to a cmp polishing composition, classified in class 252, subclass 79.1 (+).
- II. Claims 11-23, drawn to a cmp polishing method, classified in class 438, subclass 692 (+).

Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product can be used in a materially different process such as one in which SiO<sub>2</sub> is not selectively cmp polished to Si<sub>3</sub>N<sub>4</sub>.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with attorney Peyton Watkins on 11-15-01' a provisional election was made with traverse to prosecute the invention of the polishing composition, claims 1-10. Affirmation of this election must be made by applicant in replying to this Office action. Claims 11-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventor ship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventor ship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

17. Claims 1-5, and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by

Kido et. al. (6,299,659).

Kido et. al. disclose a process for selectively cmp polishing a SiO<sub>2</sub> fill layer to an underlying Si<sub>3</sub>N<sub>4</sub> etch stop layer which are used in the formation of an STI structure on the surface of a wafer. They employ a cmp slurry comprised of ceria, H<sub>2</sub>O, and any of a variety of different organic compounds (i.e.-glycine, malic acid, amino hexanoic acid, tartaric acid, etc.) in the cmp slurry which they use in their cmp polishing process. This is discussed specifically in columns 2, 7-9; and discussed in general in columns 1-18.

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18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

20. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over  
Kido et. al. as applied in paragraph 17 above.

Kido et. al. as applied in paragraph 17 above fail to disclose the following aspects of applicant's claimed invention:

-the specific usage of a cmp slurry of the composition which is claimed by the applicant  
under the specific process conditions which are claimed by the applicant

It would have been obvious to one skilled in the art to use an acid such as HNO<sub>3</sub> or a base such as KOH or NH<sub>4</sub>OH to adjust the PH of the cmp slurry employed in the cmp polishing process taught above based upon the following. The usage of acids such as HNO<sub>3</sub> or bases such

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as KOH or NH<sub>4</sub>OH to adjust the PH of a cmp slurry used to polish a substrate is conventional or at least well known in the cmp polishing arts. (The examiner takes official notice in this regard.) Further, this would have simply provided a means for desirably adjusting the PH of the cmp slurry to a region in which the most optimal cmp polishing results are achieved (i.e.-polishing rate, selectivity of cmp polishing of the SiO<sub>2</sub> layer to the Si<sub>3</sub>N<sub>4</sub> layer, etc.).

It would have been prima facie obvious to employ any of a variety of different cmp process conditions in the cmp polishing process taught above including those which are specifically claimed by the applicant. These are all well known variables in the cmp polishing art which are known to effect both the rate and quality of the cmp polishing process. Further, the selection of particular values for these variables would not necessitate any undue experimentation which would be indicative of a showing of unexpected results.

Alternatively, it would have been obvious to one skilled in the art to employ the specific process conditions which are claimed by the applicant in the cmp polishing process taught above based upon In re Aller as cited below.

“Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller, 220 F. 2d 454, 105 USPQ 233, 235 (CCPA).

Further, all of the specific process conditions which are claimed by the applicant are results effective variables whose values are known to effect both the rate, and the quality of the cmp polishing process.

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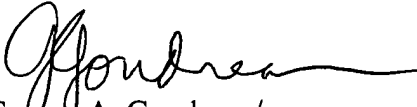
21. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner George A. Goudreau whose telephone number is (703) -308-1915. The examiner can normally be reached on Monday through Friday from 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Examiner Gregory Mills, can be reached on (703) -308-1633. The appropriate fax phone number for the organization where this application or proceeding is assigned is (703) -308-3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) -308-0661.

  
George A. Goudreau/gag

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